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INVITED COMMENTARY

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Changes in the ankle-brachial index (ABI) and progression to peripheral arterial disease (PAD) may result in major detrimental effects on quality of life and functional status and, more importantly, are potent predictors of myocardial infarction, stroke, and death. Despite its frequent occurrence, little is known about the natural history of PAD among minority ethnic groups.

The Multi-Ethnic Study of Atherosclerosis (MESA) was designed to determine ethnic differences in the progression of subclinical to clinical cardiovascular disease.

In the current study, Allison et al assessed changes in ABI in the MESA cohort over a 3-year time period. The authors conclude that besides traditional risk factors, African Americans had a significantly higher risk of progression to a low ABI (<0.9) and a reduced trend towards progression to a high ABI (>1.4). Conversely, Hispanics and Chinese did not reveal significant changes in ABI over time. These findings should not come as a surprise as African Americans have repeatedly been shown to have a higher prevalence of PAD, which appears independent of both traditional and novel vascular risk factors. There are, however, several uncertainties and ambiguities that deserve further investigation.

Although PAD has traditionally been defined as resting ABI of less than 0.90, the ABI may underestimate the severity of disease in individuals with calcified, noncompressible arteries, which are more frequent in individuals with diabetes, chronic renal failure, or advanced age. Although the literature quoted by most epidemiologic studies, including this one, regarding the accuracy of the ABI to detect PAD is primarily based in small clinical observational studies that assessed individuals with established PAD prior to treatment, the ABI has been accepted without adequate scrutiny in all populations, including those with high prevalence of diabetes. In the MESA cohort, Hispanics did not have an increased risk of significant ABI changes despite similar age and sex-adjusted prevalence of baseline diabetes and dyslipidemia compared with African Americans. Allison et al claim that the stability of ABI among Hispanics may be related to either no actual changes or similar progression in atherosclerosis and arterial rigidity. If one assumes that, as suggested by the authors, progression is the rule, the lack of changes in ABI may be more likely related to progression of both atherosclerosis and arterial rigidity. It may also mean that among Hispanics, there may be individuals with either baseline or subsequent stenosis of 50% or more in a major leg artery, ie, PAD, that may not result in lower ABI because of the "compensatory" increased arterial rigidity. The ABI may, therefore, be inaccurate to detect PAD in Hispanics given their high prevalence of diabetes and vascular calcification that render the ABI unreliable. Other noninvasive tests, such as pulse volume recordings and toe-brachial index, in addition to the ABI, should be assessed for accurate detection and screening of PAD in this defined population.